WHAT IS CLAIMED IS:

1. A solenoid valve-equipped expansion valve in which an expansion valve for adiabatically expanding refrigerant and a stop valve for opening and closing a refrigerant passage are integrated with each other,

characterized by comprising:

a driving force-transmitting member inserted into a valve hole of the expansion valve in an urged state such that the driving force-transmitting member is always in abutment with a power element;

a common valve element commonly used by the expansion valve and the stop valve, the common valve element being disposed on an opposite side of the valve hole of the expansion valve to the power element, such that the common valve element is axially movable by being guided by the driving force-transmitting member;

a spring for urging the common valve element in a valve-closing direction with respect to the driving force-transmitting member; and

a solenoid for electromagnetically coupling the common valve element and the driving force-transmitting member with each other when the solenoid is energized, to thereby transmit displacement of the power element to the common valve element.

2. The solenoid valve-equipped expansion valve according to claim 1, wherein the solenoid includes a

first core rigidly fixed to the driving force-transmitting member, a second core disposed such that the second core is movable along the driving force-transmitting member while holding the common valve element, and a solenoid coil for causing attraction of the first core and the second core to each other or releasing of the first core and the second core from each other, and wherein the spring is interposed between the first core and the second core.

3. The solenoid valve-equipped expansion valve according to claim 1, wherein the driving force-transmitting member comprises at least one shaft, and wherein a seal member is provided between the shaft and the common valve element.

4. The solenoid valve-equipped expansion valve according to claim 1, wherein the driving force-transmitting member is formed by arranging, on the same axis, a first shaft having one end in abutment with the power element and another end guiding the common valve element, a second shaft urged toward the first shaft, and a valve element guide disposed between the first and second shafts such that the valve element guide axially movably guides the common valve element, the valve element guide having the same diameter as an inner diameter of the valve hole of the expansion valve, and wherein a seal

member is disposed between the valve element guide and the common valve element.

5. The solenoid valve-equipped expansion valve according to claim 1, wherein the driving force-transmitting member is formed by arranging on the same axis, a first shaft having one end in abutment with the power element and another end guiding the common valve element, and a second shaft having the same diameter as an inner diameter of the valve hole of the expansion valve, and disposed such that the second shaft is urged toward the first shaft and axially movably guides the common valve element, and wherein a seal member is disposed between the second shaft and the common valve element.

6. The solenoid valve-equipped expansion valve according to claim 1, wherein a flexible valve sheet is provided on the common valve element or a valve seat on which the common valve element is seated, for completely stopping a flow of the refrigerant.

7. The solenoid valve-equipped expansion valve according to claim 1, wherein a check valve for preventing a reverse flow of refrigerant is provided in a refrigerant passage for allowing refrigerant to pass therethrough so as to cause the power element to sense a temperature and pressure of the refrigerant.